

#3173
IMPORT COMPUTER
CODE READER
(FRONT COVER)

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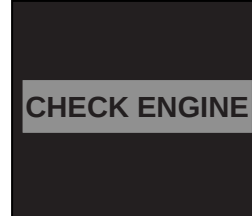
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1 Look up the Code Retrieval information for your vehicle

- Follow the step-by-step instructions.

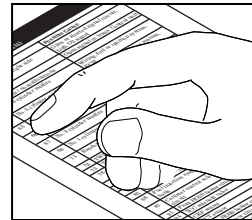
2 Read Diagnostic Trouble Codes

- The codes are displayed by either the “Check Engine” light or at the vehicles computer.



3 Locate Problem Areas

- Look up fault code descriptions in the Fault Code Definition list.



General Information

SAFETY PRECAUTIONS

SAFETY PRECAUTIONS

To avoid personal injury, instrument damage and/or damage to equipment under test; do not operate the Import Code Reader before reading this manual.

This manual describes common test procedures used by experienced service personnel and technicians. Many test procedures require precautions to avoid accidents that can result in personal injury, and/or vehicle or equipment damage. Always read your vehicle's service manual and follow its safety precautions before any test or service procedure is performed.

- a. When an engine is running, it produces carbon monoxide (a toxic and poisonous gas). To prevent serious injury or death from carbon monoxide poisoning, operate a vehicle **ONLY** in a **well-ventilated** area.
- b. To protect your eyes from propelled objects as well as hot or caustic liquids, **always** wear **approved** safety eye protection.
- c. When an engine is running, several objects rotate at a very high rate of speed (electric cooling fans, pulleys, serpentine and fan drive belts, etc.). To avoid serious injury, always be conscious of moving parts, and keep a safe distance from all these items as well as other potentially moving objects.
- d. Engine parts become extremely hot when the engine is running. To prevent severe burns, avoid contact with hot engine parts.
- e. Before starting an engine for troubleshooting, make sure the parking brake is engaged. Put the transmission in "park" (for automatic transmission) or "neutral" (for manual transmission). Block the drive wheels with a suitable blocking device.
- f. Connecting or disconnecting test equipment when the ignition is "**on**" can cause a spark. This spark is potentially damaging to the test equipment and to the vehicle's electronic components. Always turn the ignition "**off**" before connecting or disconnecting any test equipment.
- g. To prevent damage to the on-board computer when taking vehicle electrical measurements, always use a digital multimeter with at least 10 Megohms of impedance.

General Information

GENERAL INFORMATION

- h. The vehicle's battery produces highly flammable hydrogen gas. To prevent an explosion, keep all sparks, high temperature items or open flames away from the battery.
- i. Do not wear loose clothing or jewelry when working on an engine. Loose clothing can get caught on the fan, pulleys, belts, etc. Jewelry is highly conductive, and can cause a severe burn if it makes contact between a power source and ground.

GENERAL INFORMATION

This Code Reader and manual are designed for use both by consumers with little or no experience in retrieving codes, or by experienced technicians. If you are having problems with your vehicle and only want to know if any Diagnostic Trouble Codes are present in the vehicle's computer system, go directly to Chapter 3 (for Honda/Acura), Chapter 4 (for Nissan/Infiniti) or Chapter 5 (for Toyota/Lexus), and follow the simple directions to retrieve the codes. The codes retrieved, and their definitions, will give you valuable information and a starting point from which to proceed to the next step.

Once the codes have been retrieved, you can choose to:

- **Take your vehicle to an Automotive Service Center for repair:** Take your vehicle, a copy of the completed Preliminary Vehicle Diagnosis Worksheet (see page 6) and diagnostic trouble codes retrieved to your technician for evaluation. This will demonstrate to your technician that you are an informed motorist and will also assist him in pinpointing the location of the problem.
- **Attempt to fix the problem yourself:** If you choose to fix the problem yourself, **read** and follow all of the recommendations and procedures stated in the factory service manual for your application.

General Information

VEHICLES COVERED

VEHICLES COVERED

HONDA

Model	Years	Engine	Model	Years	Engine
Accord	84-95	1.8, 2.0, 2.2, 2.7	Civic/CRX	87-95	1.5, 1.6
Del Sol	93-95	1.5, 1.6	Odyssey	95	2.2, 2.3
Prelude	85-95	1.8, 2.0, 2.1 2.2, 2.3			

ACURA

Model	Years	Engine	Model	Years	Engine
Integra	86-95	1.6, 1.7, 1.8	Legend	86-95	2.5, 2.7, 3.2
NSX	91-95	3.0, 3.2	Vigor	92-94	2.5

NISSAN

Model	Years	Engine	Model	Years	Engine
Altima	93-95	2.4	Axxess	90	2.4
Maxima	86-95	3.0	NX	91-94	1.6, 2.0
Pathfinder	87-95	2.4, 3.0	Hardbody Pickup	87-95	2.4, 3.0
Pulsar	87-90	1.6, 1.8	Quest	93-95	3.0
Sentra	87-95	1.6, 2.0	Stanza	86-92	2.0, 2.4
Van	87-90	2.4	200SX	84-95	1.6, 1.8, 2.0, 3.0
240SX	89-95	2.4	300ZX	86-95	3.0

INFINITI

Model	Years	Engine	Model	Years	Engine
G20	91-95	2.0	J30	93-95	3.0
M30	90-92	3.0	Q45	90-95	4.5

TOYOTA

Model	Years	Engine	Model	Years	Engine
4 Runner	84-95	2.4, 3.0	Camry	84-93	2.0 (exc. Diesel), 2.2, 2.5, 3.0

General Information

BEFORE YOU BEGIN

TOYOTA (cont)

Model	Years	Engine	Model	Years	Engine
Celica	86-95	1.6, 1.8, 2.0, 2.2	Corolla	86-95	1.6, 1.8
Cressida	83-89	2.8 w/Super Monitor Display	Cressida	86-92	2.8, 3.0
Land Cruiser	88-94	4.0, 4.5	MR2	85-95	1.6, 2.0, 2.2
Paseo	92-95	1.5	Pickup	83-94	2.4 (exc. Diesel), 3.0
Previa	91-95	2.4 (exc. SC)	Supra	84-95	2.8, 3.0
T100	93-94	3.0	Tercel	89-94	1.5
Van	84-89	2.0,2.2			

LEXUS

Model	Years	Engine	Model	Years	Engine
ES250	90-91	2.5	ES300	92-93	3.0
GS300	93-95	3.0	LS400	90-94	4.0
SC300	92-95	3.0	SC400	92-95	4.0

BEFORE YOU BEGIN

- Fix any known mechanical problems before performing any test.

Complete a thorough vehicle inspection before starting any diagnostic procedure. Loose or damaged hoses, wiring, or electrical connectors are often responsible for poor engine performance, and in some cases these items may cause a “false” fault code. Check the following areas:

- All fluid levels
- Belts
- Vacuum Hoses
- Wiring and Connectors

Please read your vehicle’s service manual and perform all required preliminary checks **BEFORE** retrieving fault codes.

General Information

VEHICLE SERVICE MANUALS

VEHICLE SERVICE MANUALS

It is recommended that you consult the manufacturer's service manual for your vehicle before any test or repair procedures are performed.

Contact your local car dealership, auto parts store or bookstore for availability of these manuals. The following companies publish valuable repair manuals and information:

- **ALLDATA, LLC**
9412 Big Horn Blvd.
Elk Grove, California 95758
Phone: 1-916-684-5200
www.alldata.com
- **Haynes Publications**
861 Lawrence Drive
Newbury Park, California 91320
Phone: 800-442-9637
www.haynes.com
- **Mitchell International**
14145 Danielson Street
Poway, California 92064
Phone: 888-724-6742
www.mitchell.com
- **Motor Publications**
5600 Crooks Road, Suite 200
Troy, Michigan 48098
Phone: 800-426-6867
www.motor.com

FACTORY SOURCES

Visit your local Acura, Honda, Infiniti, Lexus, Nissan and Toyota dealerships to purchase a factory service manual, or visit:

- **Helm Inc.**
14310 Hamilton Avenue
Highland Park, Michigan 48203
Phone: 800-782-4356
www.helminc.com

General Information

PRELIMINARY VEHICLE DIAGNOSIS WORKSHEET

PRELIMINARY VEHICLE DIAGNOSIS WORKSHEET

The purpose of this form is to help you gather preliminary information on your vehicle before you retrieve codes. By having a complete account of your vehicle's current problem(s), you will be able to systematically pinpoint the problem(s) by comparing your answers to the fault codes you retrieve. You can also provide this information to your mechanic to assist in diagnosis and help avoid costly and unnecessary repairs. It is important for you to complete this form to help you and/or your mechanic have a clear understanding of your vehicle's problems.

NAME:	
DATE:	
VIN*:	
YEAR:	
MAKE:	
MODEL:	
ENGINE SIZE:	
VEHICLE MILEAGE:	

*VIN: Vehicle Identification Number, found at the base of the windshield on a metallic plate, or at the driver door latch area (consult your vehicle owner's manual for location).

TRANSMISSION:

- ☐ Automatic
☐ Manual

Please check all applicable items in each category.

DESCRIBE THE PROBLEM:

General Information

PRELIMINARY VEHICLE DIAGNOSIS WORKSHEET

WHEN DID YOU FIRST NOTICE THE PROBLEM:

- ☐ Just Started
- ☐ Started Last Week
- ☐ Started Last Month
- ☐ Other:

LIST ANY REPAIRS DONE IN THE PAST SIX MONTHS:

PROBLEMS STARTING

- | | |
|---|--|
| ☐ No symptoms | ☐ Cranks, but will not start |
| ☐ Will not crank | ☐ Starts, but takes a long time |

ENGINE QUILTS OR STALLS

- | | |
|--|--|
| ☐ No symptoms | ☐ Right after vehicle comes to a stop |
| ☐ Right after starting | ☐ While idling |
| ☐ When shifting into gear | ☐ During acceleration |
| ☐ During steady-speed driving | ☐ When parking |

IDLING CONDITIONS

- | | |
|---|--|
| ☐ No symptoms | ☐ Is sometimes too fast or too slow |
| ☐ Is too slow at all times | ☐ Is rough or uneven |
| ☐ Is too fast | ☐ Fluctuates up and down |

RUNNING CONDITIONS

- | | |
|---|--|
| ☐ No symptoms | ☐ Backfires |
| ☐ Runs rough | ☐ Misfires or cuts out |
| ☐ Lacks power | ☐ Engine knocks, pings or rattles |
| ☐ Bucks and jerks | ☐ Surges |
| ☐ Poor fuel economy | ☐ Dieseling or run-on |
| ☐ Hesitates or stumbles on accelerations | |

General Information

PRELIMINARY VEHICLE DIAGNOSIS WORKSHEET

AUTOMATIC TRANSMISSION PROBLEMS (if applicable)

- ☐ No symptoms
- ☐ Shifts too early or too late
- ☐ Changes gear incorrectly
- ☐ Vehicle does not move when in gear
- ☐ Jerks or bucks

PROBLEM OCCURS

- ☐ Morning
- ☐ Afternoon
- ☐ Anytime

ENGINE TEMPERATURE WHEN PROBLEM OCCURS

- ☐ Cold
- ☐ Warm
- ☐ Hot

DRIVING CONDITIONS WHEN PROBLEM OCCURS

- ☐ Short - less than 2 miles
- ☐ 2 - 10 miles
- ☐ Long - more than 10 miles
- ☐ Stop and go
- ☐ While turning
- ☐ While braking
- ☐ At gear engagement
- ☐ With A/C operating
- ☐ With headlights on
- ☐ During acceleration
- ☐ Mostly driving downhill
- ☐ Mostly driving uphill
- ☐ Mostly driving level
- ☐ Mostly driving curvy roads
- ☐ Mostly driving rough roads

DRIVING HABITS

- ☐ Mostly city driving
- ☐ Highway
- ☐ Park vehicle inside
- ☐ Park vehicle outside
- ☐ Drive less than 10 miles per day
- ☐ Drive 10 to 50 miles per day
- ☐ Drive more than 50 miles per day

GASOLINE USED

- ☐ 87 Octane
- ☐ 89 Octane
- ☐ 91 Octane
- ☐ More than 91 Octane

WEATHER CONDITIONS WHEN PROBLEM OCCURS

- ☐ 32 - 55° F (0 - 13° C)
- ☐ Below freezing (32° F / 0° C)
- ☐ Above 55° F (13° C)

CHECK ENGINE LIGHT / DASH WARNING LIGHT

- ☐ Sometimes ON
- ☐ Always ON
- ☐ Never ON

PECULIAR SMELLS

- ☐ "Hot"
- ☐ Sulfur ("rotten egg")
- ☐ Burning rubber
- ☐ Gasoline
- ☐ Burning oil
- ☐ Electrical

STRANGE NOISES

- ☐ Rattle
- ☐ Knock
- ☐ Squeak
- ☐ Other

About Import Vehicle Diagnostic Systems

AUTOMOTIVE COMPUTER CONTROL SYSTEMS

AUTOMOTIVE COMPUTER CONTROL SYSTEMS

The main purpose of the vehicle's Computer Control System is to provide maximum engine performance with the least amount of air pollution and the best fuel efficiency possible.

The Computer Control System consists of the on-board computer, and several related control devices (sensors, switches, and actuators). Most on-board computers are located inside the vehicle behind the dashboard, under the passenger's or driver's seat, or behind the passenger side kick panel. Some manufacturers may still position it in the engine compartment. The sensors, switches, and actuators are devices such as oxygen sensors, coolant temperature sensors, throttle position sensors, fuel injectors, etc., that are located throughout the engine, and are connected by electrical wiring to the on-board computer.

The on-board computer is the heart of the Computer Control System. The computer software contains several pre-programmed reference values that represent the ideal air/fuel mixture, spark timing, transmission gear selection, etc., for any driving condition. These values are programmed at the factory and are specific to each vehicle model.

The on-board computer receives information (inputs) from sensors and switches located throughout the engine. These devices monitor critical engine conditions (coolant temperature, engine speed, engine load, throttle position, air/fuel ratio, etc.). The computer compares the actual values received from these sensors with the reference values that are programmed in its memory. The computer commands the necessary corrections through operating output actuators as needed so that the incoming sensor values match the pre-programmed reference values for that particular driving condition.

Since vehicle operating conditions are constantly changing, the computer continuously makes adjustments or corrections (especially to the air/fuel mixture and spark timing) to keep all the engine systems operating within the pre-programmed reference values.

About Import Vehicle Diagnostic Systems

ON-BOARD VEHICLE DIAGNOSTICS (OBD I)

NOTE: *The computer does not make the adjustments or corrections directly. It commands other devices such as the fuel injectors, idle air control, EGR valve or Ignition Module to perform these functions. These devices are called Actuators because they initiate an action in response to the commands of the computer.*

ON-BOARD VEHICLE DIAGNOSTICS (OBD I)

- Beginning in 1988, California's Air Resources Board (CARB), and later, the Federal Government's Environmental Protection Agency (EPA), **required** vehicle manufacturers to include a self diagnostic program capable of identifying an emissions-related fault via the vehicles On-Board Computers (some manufacturers used OBD before it was required). The first generation of Onboard Diagnostics came to be known as **OBD I**.
- OBD I is a set of self-testing or self-diagnosing instructions that are programmed into the vehicle's on-board computer.
- The program is specifically designed to detect failures in the sensors, actuators, switches and wiring of the various vehicle emissions-related systems (fuel injection system, ignition system, EGR system, catalytic converter, etc.). If the computer detects a failure in any one of these components or systems, it alerts the driver by illuminating the "Check Engine" light on the dash.
- The computer also assigns a numeric code (OBD I systems utilized a 2 or 3 digit code) for each specific problem that it detects, and stores these codes in its memory for later retrieval. The codes can be retrieved from the computer's memory with the use of a device called a "Code Reader" or a "Scan Tool".

NOTE: *With the exception of some 1994 and 1995 vehicles, most vehicles from about 1982 to 1995 are equipped with **OBD I** systems.*

DIAGNOSTIC TROUBLE CODES

Diagnostic Trouble Codes, or Fault Codes, can be used to identify engine systems or components that are malfunctioning. The computer records codes for the following two types of engine problems:

About Import Vehicle Diagnostic Systems

DIAGNOSTIC TROUBLE CODES

- **“Hard” Codes.** “Hard” codes are stored for problems which are happening now. “Hard” codes cause the “Check Engine” light to turn on. The light remains on as long as the “hard” code is present.
- **“Intermittent” Codes.** “Intermittent” codes are stored for problems, which happened in the past but, are not currently present or detected by the vehicle’s computer. Intermittent problems may cause the “Check Engine” light to flicker by briefly turning on and turning off when the problem goes away. “Intermittent” codes stay in the computer’s memory even when the problem is no longer present. These intermittent problems may be caused by faulty wiring, vehicle operating conditions, etc.

NOTE: *Not all vehicles store “Intermittent” codes.*

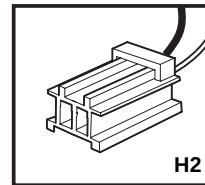
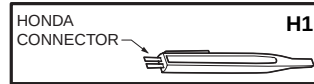
About Import Vehicle Diagnostic Systems

Honda/Acura

OVERVIEW OF HONDA/ACURA DIAGNOSTIC SYSTEMS

OVERVIEW OF HONDA/ACURA DIAGNOSTIC SYSTEMS

- Retrieving codes from Honda/Acura vehicles requires the use of the two terminal connector of code retrieval tool as shown in Figure H1.
- Honda/Acura vehicles use a variety of diagnostic systems which use either the “Check Engine” light or LEDs (Light Emitting Diodes) on the ECM (Engine Control Module) to display diagnostic trouble codes.
- To retrieve codes you will need to access your vehicle’s computer test connector or ECM.
- Honda/Acura vehicles use a rectangular two-socket plastic connector, usually light blue in color (H2).



NOTE: Some Honda/Acura models do not require a tool to retrieve codes. The “Tool Req?” column in the “Code Retrieval Procedures Tables” on pages 14 through 17 will let you know if a tool is required. If no tool is required, just follow the procedures as indicated to retrieve codes.

“Check Engine” Light



- The “Check Engine” light does more than alert you to a potential problem. It also transmits the fault codes in the computer’s memory through a series of blinks and pauses when the vehicle is in diagnostic mode.
- Your “Check Engine” light is located on your vehicle’s instrument cluster, and may be labeled “PGM-FI”, “PGM-CARB”, “CHECK”, or with a picture of an engine (Figure H3).

NOTE: If your “Check Engine” light does not come on when you turn on the ignition, please refer to your vehicle’s service manual. You may have a problem with the vehicle that is preventing it from illuminating. You must fix this problem before you can retrieve fault codes from the vehicle’s computer.

CODE RETRIEVAL PROCEDURE

- Always observe safety precautions whenever working on a vehicle.
 - Fix any known mechanical problems before this test.
 - Warm up engine before this test.
 - Have a pencil and paper handy.
1. Locate your vehicle in the appropriate table (see below for “Honda Code Retrieval Procedures”; see page 16 for “Acura Code Retrieval Procedures”).
 2. Follow the procedures applicable to your vehicle.
 - Refer to page 18 for “ECU/Test Connector Locations”, (Figures H4 through H9).
 - Refer to page 19 for “Code Examples” (Figures H10 through H17).
 3. Refer to pages 21 and 22 for “Honda/Acura Fault Code Definitions”. Match the retrieved Diagnostic Trouble Codes with those listed, read the associated definition(s), and consult the vehicle’s service manual for further evaluation.
 4. Refer to page 20 for the “Erasing Codes” procedure. Consult the appropriate table for your vehicle (“Honda Erasing Procedure” or “Acura Erasing Procedure”) and follow the procedure listed.

Honda Code Retrieval Procedures

Model	Years	Eng.	Tool Req?	Perform the following:
Accord	84-85	1.8 (F.I. only)	N	Procedure: Access ECU (located under driver’s seat) (H4). Turn ignition on and observe LEDs on ECU for codes. Codes: Codes are displayed using 4 LEDs labeled 8, 4, 2, 1 (H10). Determine codes by adding LED values. Examples: LED 8 and LED 1 on = code 9 (8 + 1 = 9) (H11) LED 4 on = code 4 (4 + 0 = 4) (H12) No LEDs = code 0 (H13) When more than one code is present, codes are separated by a 2 second pause.

Honda/Acura

CODE RETRIEVAL PROCEDURE

Honda Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
Accord	86-89	2.0 (F.I. only)	N	Procedure: Access ECU (located under front driver's seat) (H4) by moving seat all the way back. Turn ignition on and observe LED on ECU for codes. Codes: Codes blinked out by LED are separated by two second pause, then repeated. For example: 2 blinks - two second pause - 2 blinks = code 2 (H14)
Accord Prelude	90 88-91	2.2 2.0, 2.1	N	Procedure: Access ECU (located on passenger side floor board) (H6) by pulling back the carpet. Turn ignition on and observe LED on ECU for codes. Codes: Codes 1 ~ 10 are displayed using a series of short blinks (H15), codes 11 & up use a combination of long and short blinks (H16). The number of long blinks equals the first digit and the number of short blinks equals the second (H17).
Accord Civic Del Sol Odyssey	91-95 92-95 94-95 95	2.2 (incl. V-TEC), 2.7 (incl. V-TEC) 1.5, 1.6 1.5, 1.6 2.2, 2.3	Y	Procedure: Access service check connector (located under dashboard on passenger side) (H7). Plug Code Reader into service check connector and turn ignition on and observe "Check Engine" light for codes. Codes: Codes blink out one after the other. "Check Engine" light will stop blinking after all codes have been displayed. Trouble codes 1 - 10 are displayed using a series of short blinks (H15); codes 11 & up use a combination of long and short blinks (H16). The number of long blinks equals the first digit and the number of short blinks indicates the second (H17).
Civic/ CRX	87-91	1.5, 1.6	N	Procedure: Access ECU (located on passenger side floor board) (H6) by pulling back the carpet. Turn ignition on and observe LED on ECU for codes. Codes: Codes blinked out by LED are separated by two second pause, then repeated. For example: 2 blinks - two second pause - 2 blinks = code 2 (H14).

Honda/Acura

CODE RETRIEVAL PROCEDURE

Honda Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
Prelude	85-87	1.8, 2.0	N	Procedure: Access ECU (located behind driver's seat within door pillar assembly) (H8). Turn ignition on and observe LED on ECU for codes. Codes: Codes blinked out by LED are separated by two second pause, then repeated. For example: 2 blinks - two second pause - 2 blinks = code 2 (H14)
Prelude	92-95	2.2, 2.3	Y	Procedure: Access service check connector (located behind center console on driver's side) (H9). Plug Code Reader into service check connector and turn ignition on. Observe "Check Engine" light for codes. Codes: Codes 1 - 10 are displayed using a series of short blinks (H15), codes 11 & up use a combination of long and short blinks (H16). The number of long blinks equals the first digit and the number of short blinks equals the second (H17).

Acura Code Retrieval Procedures

Model	Years	Eng.	Tool Req?	Perform the following:
Integra	86-91	1.6, 1.8	N	Procedure: • All <i>except</i> 90, 91 models: Access ECU (located under front passenger seat) (H5) by moving seat all the way back. • 90, 91 models <i>only</i>: Access ECU (located on passenger side floor board) (H6) by pulling back the carpet. • Turn ignition on and observe LED on ECU for codes. Codes: Codes blink out one after the other. Trouble codes 1 - 10 are displayed using a series of short blinks (H15), codes 11 and up use a combination of long and short blinks (H16). The number of long blinks equals the first digit and the number of short equals the second (H17).

Honda/Acura

CODE RETRIEVAL PROCEDURE

Acura Code Retrieval Procedures (Cont)

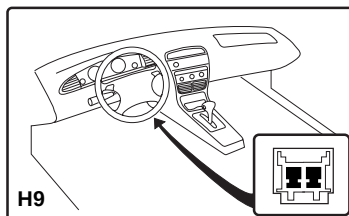
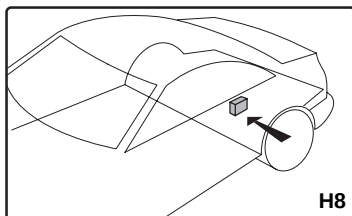
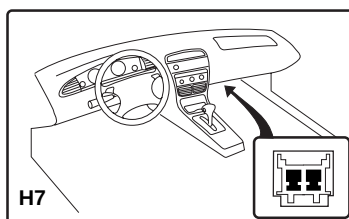
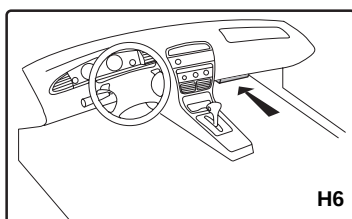
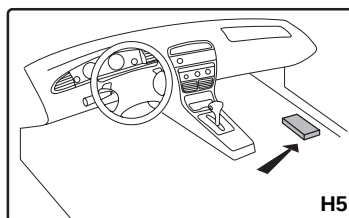
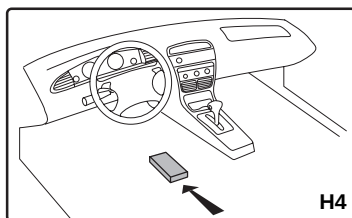
Model	Years	Eng.	Tool Req?	Perform the following:
Integra Integra V-TEC Legend NSX Vigor	92-95 94-95 91-95 91-95 91-95	1.7, 1.8 1.8 2.5, 2.7, 3.2 3.0, 3.2 2.5	Y	Procedure: Access service check connector (located under dashboard on passenger side) (H7). Plug Code Reader into service check connector and turn ignition on. Observe "Check Engine" light for codes. Codes: Codes blink out one after the other. Trouble codes 1 - 10 are displayed using a series of short blinks (H15), codes 11 and up use a combination of long and short blinks (H16). The number of long blinks equals the first digit and the number of short equals the second (H17).
Legend	86-90	2.5, 2.7	N	Procedure: • 1986 models only: Access ECU (located under front passenger seat (H5) by moving seat all the way back. • 1987~89 models only: Access ECU (located on passenger side floor board) (H6) by pulling back carpet. • Turn ignition on and observe LED on ECU for codes. Codes: Codes blink out in single flashes followed by a two second pause (For example, 2 blinks, then two second pause equals code 2 (H14). LED will stop flashing after all codes have been displayed.

Honda/Acura

CODE RETRIEVAL PROCEDURE

ECU/Test Connector Locations

The physical locations of the ECU or test connector for Honda/Acura vehicles are shown in Figures H4 through H9. Refer to the code retrieval instructions in Table H1 (Honda) or Table H2 (Acura) to determine the correct location for your vehicle.

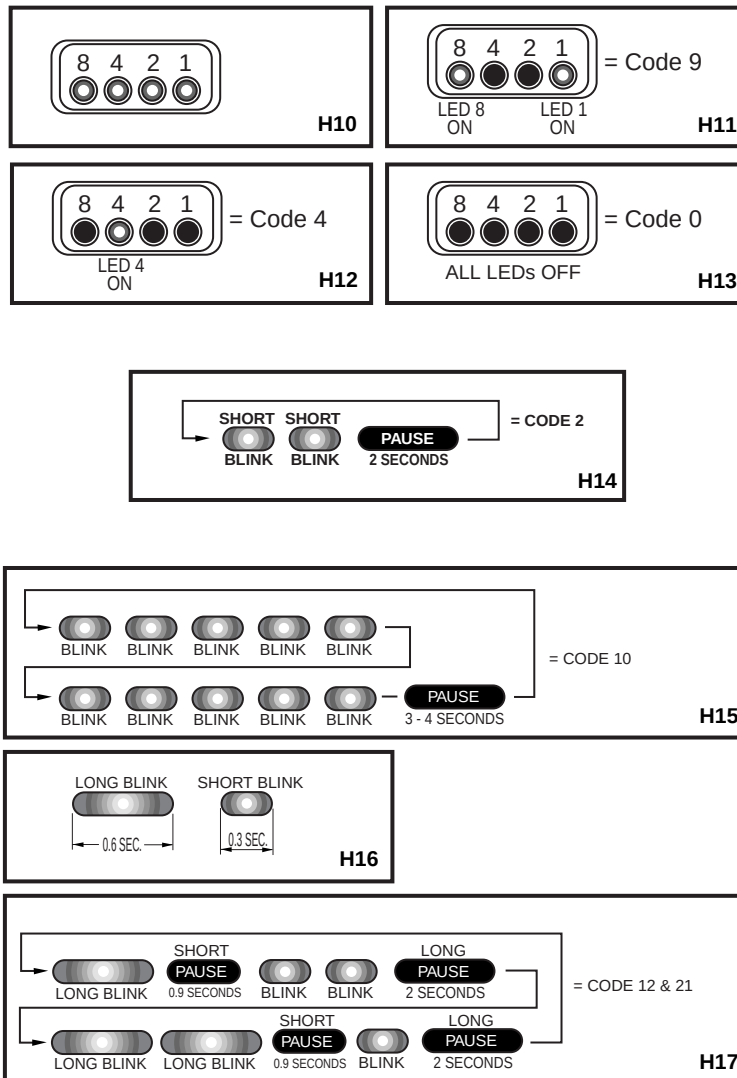


Honda/Acura

CODE RETRIEVAL PROCEDURE

Code Examples

Examples of Honda/Acura fault codes are shown in Figures H10 through H17. Refer to the code retrieval instructions in Table H1 (Honda) or Table H2 (Acura) to determine the code display for your vehicle.



ERASING CODES

- Always observe safety precautions whenever working on a vehicle.
- Remove Code Reader from vehicle's test connector before erasing codes.
- Erase codes only when all repairs have been completed. Refer to "Honda Erasing Procedures" or "Acura Erasing Procedures" for specific instructions for your year, make and model.
- After erasing codes, verify that repairs were successfully completed. Start the engine and warm to normal operating temperature. After normal operating temperature is reached, turn off the ignition and repeat the code retrieval procedure for your vehicle. If no codes are retrieved, the repair(s) was successful.

NOTE: Removing fuses or battery cables may clear the memory on the radio, clock, etc., or may enable the "Theftlock" feature on the radio.

Honda Erasing Procedures

Model	Years	Procedure
Accord	84-85	Remove fuse No. 10 for 10 seconds
	87-89	Remove fuse No. 11 for 10 seconds
	90-93	Remove fuse No. 24 for 10 seconds
Civic / CRX	94	Remove "Radio" fuse for 10 seconds
	87-91	Remove fuse No. 30 for 10 seconds
Del Sol	92-95	Remove fuse No. 32 for 10 seconds
Odyssey	93-95	Remove "Radio" fuse for 10 seconds
Prelude	90	Remove "Radio" fuse for 10 seconds
	89-91	Remove fuse No. 35 for 10 seconds
	92-95	Remove fuse No. 43 for 10 seconds

Acura Erasing Procedures

Model	Years	Procedure
Integra	86-91	Remove "Hazard" fuse for 10 seconds
	92-95	Remove "Back Up" fuse for 10 seconds
Legend	90	Remove "Alternator Sense" fuse for 10 seconds
	91-95	Remove fuse No. 15 for 10 seconds
NSX	91-95	Remove "Clock" fuse for 10 seconds
Vigor	92-94	Remove "Back Up" fuse for 10 seconds

HONDA/ACURA FAULT CODE DEFINITIONS

IMPORTANT: Retrieving and utilizing Diagnostic Trouble Codes (DTCs) for troubleshooting vehicle operation problems is only one part of an overall diagnostic strategy. Never replace a part based solely on the DTC definition. Always consult the vehicle's service manual for more detailed testing instructions. Each DTC has a set of testing procedures, instructions and flow charts that must be followed to confirm the exact location of the problem. This type of information is found in the vehicle's service manual.

Code	Description	Possible Cause
0	ECU / ECU signal	No signal to ECU
1	Oxygen sensor circuit	Oxygen sensor or circuit, ECU
2	Oxygen sensor circuit	Oxygen sensor or circuit, ECU
3	MAP sensor circuit	Map sensor circuit
4	CKP sensor / engine speed (RPM) sensor	Crank angle sensor or circuit, ECU
5	MAP sensor circuit	MAP sensor or circuit, mechanical problem
6	ECT sensor circuit	ECT sensor or circuit, automatic transaxle control unit
7	TPS / Angle Sensor	TPS sensor or circuit, automatic transaxle control unit
8	CKP sensor / engine speed (RPM) sensor	Crank angle sensor or circuit, ECU
9	CMP sensor	CMP sensor or circuit
10	IAT sensor	IAT sensor or circuit
11	Idle Mixture Adjuster Sensor	Idle mixture adjuster sensor or circuit
12	EGR system fault	No EGR action, faulty EGR valve
13	BARO sensor circuit	BARO sensor or circuit
14	Idle Air Control valve circuit / ECU	Open or shorted out ignition signal circuit / No signal to ECU
15	Ignition Output signal	Open or shorted ignition output signal circuit
16	Fuel Injector Circuit	Open or shorted fuel injector circuit
17	VSS circuit	VSS sensor or circuit
18	Ignition Timing Adjuster	Open or shorted signal circuit
19	A/T Lock-up control solenoid Lock-up control solenoid	Open or shorted signal circuit, lock-up solenoid
20	Electrical Load Detector / Sensor	Electrical load detector or circuit

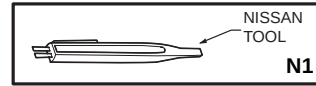
Honda/Acura

Fault Code Definitions (21 - 59)

Code	Description	Possible Cause
21	Spool Solenoid Valve	Open or shorted signal circuit, spool solenoid valve
22	Valve Timing Electronic Oil pressure switch	Open or shorted signal circuit, valve timing oil pressure switch
23	Knock sensor circuit	Knock sensor or circuit
30	AT / ECU communication signal A	AT control unit, ECU
31	AT / ECU communication signal B	AT control unit, ECU
35	Traction control / ECU / signal	Traction control module, ECU
36	Traction control / ECU / signal	Traction control module, ECU
41	Oxygen sensor heater - left side	Oxygen sensor / heater or circuit
42	Oxygen sensor heater - right side	Oxygen sensor / heater or circuit
43	Fuel Supply system - left side	Oxygen sensor or circuit, fuel system
44	Fuel Supply system - right side	Oxygen sensor or circuit, fuel system
45	Fuel metering - left side	Injector control circuit, incorrect fuel metering
46	Fuel metering - right side	Injector control circuit, incorrect fuel metering
48	Heated oxygen sensor	Oxygen sensor or circuit
53	Right Knock Sensor	Right knock sensor or circuit
54	CKP sensor 2	CKP sensor 2 or circuit
59	CMP sensor 2	CMP sensor 2 or circuit

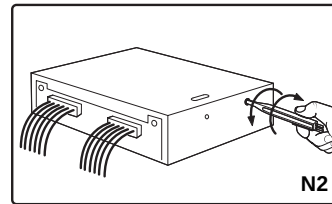
OVERVIEW OF NISSAN/INFINITI DIAGNOSTIC SYSTEMS

- Retrieving codes from Nissan/Infiniti vehicles requires the use of the flat end of the code retrieval tool shown in Figure N1.
- Nissan/Infiniti vehicles use a variety of computer systems which are equipped with either a single-LED (Light Emitting Diode) or a dual-LED display.
- To retrieve codes, you need to first locate the LED display on the vehicle's computer. The LED(s) are mounted inside the computer, but may be seen by looking through an opening in the top of or on the side of the computer housing. In some cases you may have to remove the computer from its mount.



NOTE: Refer to the vehicle's service manual when removing the computer from its mount, as it is easily damaged.

All Nissan/Infiniti vehicles covered in this manual are equipped with a screw-type diagnostic mode selector on the vehicle's computer. The diagnostic mode selector is accessed through a cutout in the computer housing. Two marks show the operating limits of the diagnostic mode selector. The Code Reader is used to adjust the position of the diagnostic mode selector (N2).



NOTE: Some Nissan/Infiniti models do not require a tool to retrieve codes. The "Tool Req?" column in the "Code Retrieval Procedures Tables" on pages 24 through 29 will let you know if a tool is required. If no tool is required, just follow the procedures as indicated to retrieve codes.

CODE RETRIEVAL PROCEDURE

- Always observe safety precautions whenever working on a vehicle.
 - Fix any known mechanical problems before this test.
 - Warm up engine before this test.
 - Have a pencil and paper handy.
1. Locate your vehicle in the appropriate table (see below for “Nissan Code Retrieval Procedures”; see page 29 for “Infiniti Code Retrieval Procedures”).
 2. Follow the procedures applicable to your vehicle.
 - Refer to page 30 for “ECU Locations”, (Figures N3 through N7).
 - Refer to page 31 for “Code Examples” (Figures N8 through N11).
 3. Refer to pages 34-36 for “Nissan/Infiniti Fault Code Definitions”. Match the retrieved Diagnostic Trouble Codes with those listed, read the associated definition(s), and consult the vehicle’s service manual for further evaluation.
 4. Refer to page 32 for the “Erasing Codes” procedure. Consult the appropriate table for your vehicle (“Nissan Erasing Procedure” or “Infiniti Erasing Procedure”) and follow the procedure listed.

Nissan Code Retrieval Procedures

Model	Years	Eng.	Tool Req?	Perform the following:
Altima Maxima Sentra Stanza 200SX	93-95 92-94 91-95 90-92 95	2.4 3.0 (DOHC) 2.0 2.4 1.6, 2.0	Y	Procedure: Access ECU (located behind center console) (N3). Turn ignition on. Using Nissan tool, turn diagnostic mode selector fully clockwise; wait two seconds, then turn selector fully counterclockwise. Observe red LED on ECU for codes. Codes: Codes are displayed using a combination of long and short blinks. Codes are determined by the number and duration of blinks. A long blink indicates the first digit (ten); a short blink indicates the second digit (ones) (N8). Example: long blink-pause short blink short blink = code 12 (N9). If

Nissan/Infiniti

CODE RETRIEVAL PROCEDURE

Nissan Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
Altima Maxima Sentra Stanza 200SX (cont)	93-95 92-94 91-95 90-92 95	2.4 3.0 (DOHC) 2.0 2.4 1.6, 2.0	Y	more than one code is stored, the ECU will blink the lowest number code first, pause for two seconds, then display the next highest number code. This continues until all stored codes have been displayed; the cycle then repeats.
Stanza 200SX	86 84-86	2.0 1.8, 2.0	Y	Procedure: Access ECU (from driver's side kick panel) (N6) (except Stanza Wagon, which is located under driver's seat). Make sure diagnostic mode selector is turned fully counterclockwise. Turn ignition on. Using Nissan tool, turn selector fully clockwise. Observe both red and green LEDs on ECU for codes. Codes: Codes are displayed by blinking of both Red and Green LEDs (N10). The Red LED blinks first, followed by the Green LED. The Red LED indicates the first digit (tens); the Green LED indicates the second digit (ones). Example: one Red flash and two Green flashes = code 12 (N11).
Pulsar Sentra Stanza 200SX	88-90 88-90 87-90 87-88	1.6, 1.8 1.6 2.0, 2.4 2.0, 3.0	Y	Procedure: • All except 200 SX: Access ECU (located under passenger seat) (N5) (except Stanza Wagon, which is located under driver's seat). • 200 SX only: Access ECU (located behind driver side kick panel) (N6). • Turn ignition on. Using Nissan tool, turn diagnostic mode selector fully clockwise and observe LEDs on ECU. When LEDs have flashed three times, turn selector fully counterclockwise. Observe both red and green LEDs on ECU for codes. Codes: Codes are displayed by blinking of both Red and Green LEDs (N10). The Red LED blinks first, followed by the Green LED. The Red LED indicates the first digit (tens); the Green LED indicates the second digit (ones). Example: one Red flash and two Green flashes = code 12 (N11).

Nissan/Infiniti

CODE RETRIEVAL PROCEDURE

Nissan Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
Maxima	86-94	3.0 (SOHC)	Y	Procedure: • All <i>except</i> 87, 88 Maxima: Access ECU (located under passenger seat) (N5). • 87, 88 Maxima <i>only</i>: Access ECU (located behind center console) (N3). • Turn ignition on. Using Nissan tool, turn diagnostic mode selector fully clockwise, wait at least two seconds, then turn selector fully counterclockwise. Observe both red and green LEDs on ECU for codes. Codes: Codes are displayed by blinking of both Red and Green LEDs (N10). The Red LED blinks first, followed by the green LED. The Red LED indicates the first digit (tens); the Green LED indicates the second digit (ones). Example: one Red flash and two Green flashes = code 12 (N11).
NX 240SX 300ZX	91-93 91-95 90-95	1.6, 2.0 2.4 3.0 (incl. Turbo)	Y	Procedure: Access ECU (located behind center console) (N3) (except 300ZX, which is located in passenger side footwell under carpet (N5)). Turn ignition on. Using Nissan tool, turn diagnostic mode selector fully clockwise; wait two seconds, then turn selector fully counterclockwise. Observe red LED on ECU for codes. Codes: Codes are displayed using a combination of long and short blinks. Codes are determined by the number and duration of LED blinks. A long blink indicates the first digit (tens); a short pause indicates the second digit (ones) (N8). Example: long blink-pause-short blink short blink = code 12 (N9). If more than one code is stored, the ECU will blink the lowest number code lowest number code first, pause for two seconds, then display the next highest number code. This continues until all stored codes have been displayed; the cycle then repeats.

Nissan/Infiniti

CODE RETRIEVAL PROCEDURE

Nissan Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
Van	87-88, 90	2.4	Y	Procedure: Access ECU (located under passenger seat) (N5). Using Nissan tool, turn diagnostic mode selector fully clockwise and observe LEDs on ECU. When LEDs have blinked three times, turn selector fully counterclockwise. Observe both red and green LEDs on ECU for codes. Codes: Codes are displayed by blinking of both Red and Green LEDs (N10). The Red LED blinks first, followed by the Green LED. The Red LED indicates the first digit (tens); the Green LED indicates the second digit (ones). Example: one Red flash and two Green flashes = code 12 (N11).
Pathfinder	87-95	2.4, 3.0		
Hard-body Pickup	87-95	2.4, 3.0		
240SX	89-90	2.4	Y	Procedure: Access ECU (from passenger side front kick panel) (N4), and position it so LEDs can be observed. Using Nissan tool, turn diagnostic mode selector fully clockwise and observe LEDs on ECU. When LEDs have blinked three times, turn selector fully counterclockwise. Observe both red and green LEDs on ECU for codes. Codes: Codes are displayed by blinking of both Red and Green LEDs (N10). The Red LED blinks first, followed by the Green LED. The Red LED indicates the first digit (tens); the Green LED indicates the second digit (ones). Example: one Red flash and two Green flashes = code 12 (N11).
300ZX	86	3.0 (incl. Turbo)	Y	Procedure: Access ECU (from passenger side front kick panel) (N4). Make sure diagnostic mode selector is turned fully counterclockwise. Turn ignition on. Using Nissan tool, turn selector fully clockwise. Observe both red and green LEDs on ECU for codes. Codes: Codes are displayed by blinking of both Red and Green LEDs (N10). The Red LED blinks first, followed by the Green LED. The Red LED indicates the first digit (tens); the Green LED indicates

Nissan/Infiniti

CODE RETRIEVAL PROCEDURE

Nissan Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
300ZX (cont)	86	3.0	Y	the second digit (ones). Example: one Red flash and two Green flashes = code 12 (N11).
300ZX	87-89	3.0 (incl. Turbo)	Y	Procedure: Access ECU (from passenger side front kick panel) (N4). Turn ignition on. Using Nissan tool, turn diagnostic mode selector fully clockwise and observe LEDs on ECU. When LEDs have blinked three times, turn selector fully counterclockwise. Observe both red and green LEDs on ECU for codes. Codes: Codes are displayed by blinking of both Red and Green LEDs (N10). The Red LED blinks first, followed by the Green LED. The Red LED indicates the first digit (tens); the Green LED indicates the second digit (ones). Example: one Red flash and two Green flashes = code 12 (N11).
Axxess	90	2.4	Y	Procedure: Access ECU (located behind center console) (N3). Turn ignition on. Using Nissan tool, turn diagnostic mode selector fully clockwise and observe LEDs on ECU. When LEDs have blinked three times, turn selector fully counterclockwise. Observe both red and green LEDs on ECU for codes. Codes: Codes are displayed by blinking of both Red and Green LEDs (N10). The Red LED blinks first, followed by the Green LED. The Red LED indicates the first digit (tens); the Green LED indicates the second digit (ones). Example: one Red flash and two Green flashes = code 12 (N11).

Nissan/Infiniti

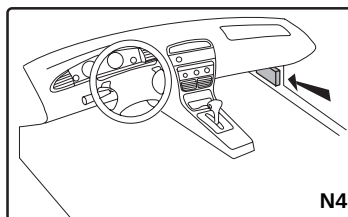
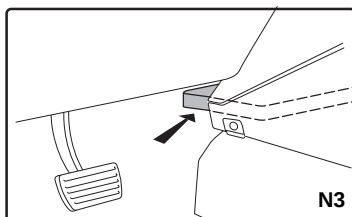
CODE RETRIEVAL PROCEDURE

Infiniti Code Retrieval Procedures

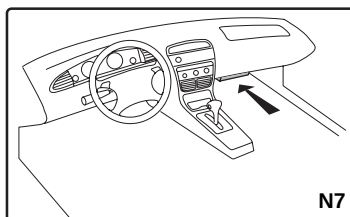
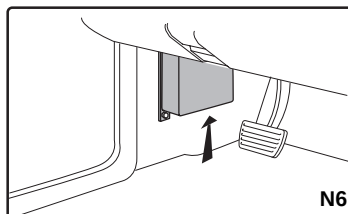
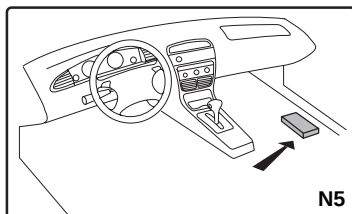
Model	Years	Eng.	Tool Req?	Perform the following:
G20	91-95	2.0	Y	Procedure: Access ECU (from passenger side kick panel) (N4). Turn ignition on. Using Nissan tool, turn diagnostic mode selector fully clockwise; wait for two seconds, then turn selector fully counterclockwise. Observe LED on ECU (or vehicle's "Check Engine" light) for codes. Codes: Codes are displayed using both long and short blinks (N8). The long blinks represent the first digit, the short blinks represent the second digit (N9). Codes are displayed in numeric order, beginning with the lowest number code and ending with the highest number code.
J30 M30 Q45	93-95 90-92 90-95	3.0 3.0 4.5	Y	Procedure: Access ECU (from passenger side kick panel) (N4) and position it to observe LED. Turn ignition on. Using Nissan tool, turn diagnostic mode selector fully clockwise, wait for two seconds, then turn selector fully counterclockwise. Observe LED on ECU (or vehicle's "Check Engine" light) for codes. Codes: Codes are displayed using both long and short blinks (N8). The long blinks represent the first digit, the short blinks represent the second digit (N9). Codes are displayed in numeric order, beginning with the lowest number code and ending with the highest number code.

ECU Locations

The physical locations of the ECU for Nissan/Infiniti vehicles are shown in Figures N3 through N7. Refer to the code retrieval instructions in Table N1 (Nissan) or Table N2 (Infiniti) to determine the correct location for your vehicle.



ECU may need to be accessed from driver or passenger side, depending on model.

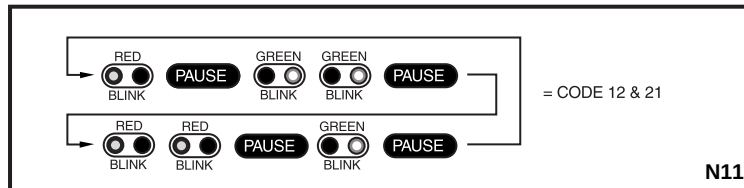
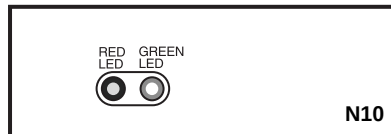
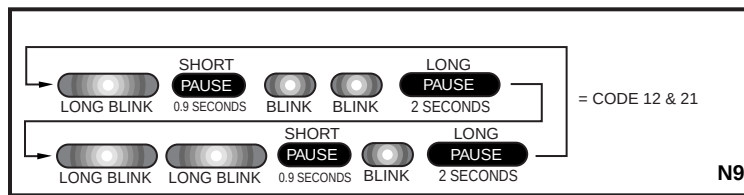
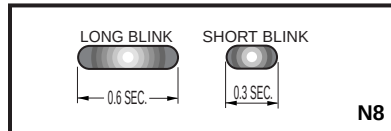


Nissan/Infiniti

CODE RETRIEVAL PROCEDURE

Code Examples

Examples of Nissan/Infiniti fault codes are shown in Figures N8 through N11. Refer to the code retrieval instructions in Table N1 (Nissan) or Table N2 (Infiniti) to determine the code display for your vehicle.



ERASING CODES

- Always observe safety precautions whenever working on a vehicle.
- Erase codes only when all repairs have been completed. Refer to “Nissan Erasing Procedures” or “Infiniti Erasing Procedures” for specific instructions for your year, make and model.
- After erasing codes, verify that repairs were successfully completed. Start the engine and warm to normal operating temperature. After normal operating temperature is reached, turn off the ignition and repeat the code retrieval procedure for your vehicle. If no codes are retrieved, the repair(s) was successful.

Nissan Erasing Procedures

Model	Years	Procedure
Altima	93-95	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
Axxess	90	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
Maxima	87-92	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
	93-94	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
NX	91-93	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
Path-finder	87-95	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
Hard-body Pickup	87-95	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
Pulsar	88-90	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
Sentra	88-90	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
	91-95	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.

Nissan/Infiniti

ERASING CODES

Nissan Erasing Procedures (Cont)

Model	Years	Procedure
Stanza	86	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
	87-89	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
	91-92	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
Van	87-90	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
200SX	84-86	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
	87-88	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
	90	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
240SX	89-90	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
	91-95	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
300ZX	86	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.
	87-89	After codes have been retrieved turn selector fully clockwise. After the LED's have blinked four times turn the selector fully counterclockwise. ECU code memory is now erased.
	90-95	After codes have been retrieved turn selector fully clockwise and wait for two seconds. ECU code memory is now erased.

Infiniti Erasing Procedures

Model	Years	Procedure
All	All	After you have finished retrieving codes turn the selector back fully clockwise to erase the ECU code memory.

NISSAN/INFINITI FAULT CODE DEFINITIONS

IMPORTANT: Retrieving and utilizing Diagnostic Trouble Codes (DTCs) for troubleshooting vehicle operation problems is only one part of an overall diagnostic strategy. Never replace a part based solely on the DTC definition. Always consult the vehicle's service manual for more detailed testing instructions. Each DTC has a set of testing procedures, instructions and flow charts that must be followed to confirm the exact location of the problem. This type of information is found in the vehicle's service manual.

Code	Description	Possible Cause
11	CKP sensor circuit	CKP sensor or circuit
12	MAF sensor circuit	MAF sensor or circuit, MAF signal too high
13	ECT sensor circuit	ECT sensor or circuit
14	VSS circuit	VSS or circuit
16	Traction Control System	Open or shorted signal circuit
21	No ignition reference pulse	Loss of primary signal
22	Fuel Pump / Idle speed control valve	Open or shorted signal circuit
23	Idle switch / throttle valve switch	Open or shorted signal circuit / defective idle speed valve
24	Idle switch / Trans. switch / Neutral/Park switch	Open or shorted signal circuit
25	Idle Speed control	Open or shorted AAC circuit
31	ECU circuit	Abnormal input signals
32	EGR sensor circuit	No EGR operation
33	HO2S fault	Open or shorted signal circuit, high HO2S signal
34	Knock Sensor circuit	Knock sensor or circuit
35	EGR temperature sensor	EGR temperature sensor or circuit
36	EGR valve / system	EGR / EVAP valve or circuit
37	Closed loop control	HO2S, intake/fuel system
41	Air temperature sensor	Air temperature sensor or circuit
42	Fuel temperature sensor	Fuel temperature sensor or circuit
43	TPS circuit	TPS or circuit
44	No faults / no malfunctions	
45	Injector leak	Leak at injector
46	Secondary TPS circuit	Secondary TPS or circuit
51	Injector circuit	Defective injector

Nissan/Infiniti

FAULT CODE DEFINITIONS (53 - 111)

Code	Description	Possible Cause
53	Oxygen sensor - right side	Open or shorted signal circuit, high O2 signal
54	A/T signal	Open signal in trans. Control unit
55	No faults / no malfunctions	
63	No. 6 cylinder misfire	Wiring, fuel or ignition system, ECM
64	No. 5 cylinder misfire	Wiring, fuel or ignition system, ECM
65	No. 4 cylinder misfire	Wiring, fuel or ignition system, ECM
66	No. 3 cylinder misfire	Wiring, fuel or ignition system, ECM
67	No. 2 cylinder misfire	Wiring, fuel or ignition system, ECM
68	No. 1 cylinder misfire	Wiring, fuel or ignition system, ECM
71	Random misfire	Wiring, fuel or ignition system, ECM
72	TWC function RH bank	Catalytic converter, wiring, ECM
73	TWC function LH bank	Catalytic converter, wiring, ECM
76	Fuel injection system function RH bank	Wiring, injector, oxygen sensor
77	Rear HO2S circuit	Wiring, injector, oxygen sensor
82	CKP sensor	Wiring, CKP sensor, ECM
84	A/T diagnosis communication line	Wiring, ECM
85	CMP actuator - circuit malfunction	Wiring, CMP sensor, ECM
86	Fuel injection system function LH bank	Wiring, oxygen sensor, MAF, ECM
87	Canister control solenoid valve circuit	Wiring, EVAP valve, ECM
91	Front HO2S heater circuit RH bank	Wiring, HO2S, ECM
94	TCC solenoid valve	Wiring, clutch solenoid, ECM
95	CKP sensor	Wiring, CKP sensor, ECM
98	ECT sensor	Wiring, ECT sensor, ECM
101	Front HO2S heater circuit LH bank	Wiring HO2S, ECM
101	CMP sensor circuit	CMP sensor or circuit
102	MAF sensor circuit	MAF sensor or circuit
103	ECT sensor circuit	ECT sensor or circuit
104	VSS circuit malfunction	VSS or circuit
111	EVAP canister purge control system	EVAP valve

Nissan/Infiniti

FAULT CODE DEFINITIONS (113 - 115)

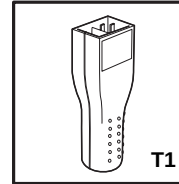
Code	Description	Possible Cause
113	EVAP canister purge control system	EVAP valve
114	Fuel trim - right side - fuel too rich	Oxygen sensor or circuit, fuel pressure
115	Fuel trim - right side - fuel too rich	Oxygen sensor or circuit, fuel pressure

Toyota/Lexus

OVERVIEW OF TOYOTA/LEXUS DIAGNOSTIC SYSTEMS

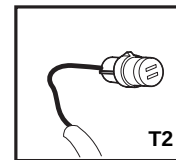
OVERVIEW OF TOYOTA/LEXUS DIAGNOSTIC SYSTEMS

- Retrieving codes from Toyota/Lexus vehicles requires connecting either the round or square end of code retrieval tool (Figure T1) to vehicle's test connector.
- To retrieve codes, you will need to access your vehicle's computer test connector.



Round Connector (T2): Used on older model cars and vans. Yellow or green in color, located under the hood.

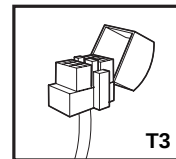
- Front corner (right or left)
- Fender well (right or left)
- Fire wall (right or left)



It may have a protective cap or may be plugged into a protective cap mounted on the side wall. Use round head of Code Reader on vehicles with this type of connector.

Square Connector (T3): Used on newer model cars and vans. Black or grey in color located under the hood near either:

- Front corner (right or left)
- Fender well (right or left)
- Fire wall (right or left)



It has a cover labeled "DIAGNOSTIC", "DIAGNOSIS", or "CHECK CONN". Use square head of Code Reader on vehicles with this type of connector.

NOTE: Some Toyota/Lexus models do not require a tool to retrieve codes. The "Tool Req?" column in the "Code Retrieval Procedures Tables" on pages 38 through 41 will let you know if a tool is required. If no tool is required, just follow the procedures as indicated to retrieve codes.

"Check Engine" Light

- Transmits the fault codes in the computer's memory to you.

CODE RETRIEVAL PROCEDURE

- Always observe safety precautions whenever working on a vehicle.
 - Fix any known mechanical problems before this test.
 - Warm up engine before this test.
 - Have a pencil and paper handy.
1. Locate your vehicle in the appropriate table (see below for “Toyota Code Retrieval Procedures”; see page 40 for “Lexus Code Retrieval Procedures”).
 2. Follow the procedures applicable to your vehicle.
 - Refer to page 41 for “Diagnostic Connector Locations”, (Figures T6 and T7).
 - Refer to page 42 for “Code Examples” (Figures T8 through T10).
 3. Refer to pages 45-47 for “Toyota/Lexus Fault Code Definitions”. Match the retrieved Diagnostic Trouble Codes with those listed, read the associated definition(s), and consult the vehicle’s service manual for further evaluation.
 4. Refer to page 43 for the “Erasing Codes” procedure. Consult the appropriate table for your vehicle (“Toyota Erasing Procedures” or “Lexus Erasing Procedures”) and follow the procedure listed.

Toyota Code Retrieval Procedures

Model	Years	Eng.	Tool Req?	Perform the following:
Corolla	85-86	1.6	Y	Procedure: Locate round diagnostic connector (under hood) (T6). Plug Code Reader into diagnostic connector. Turn ignition on. Observe “Check Engine” light for codes. Codes: If there are no codes stored in memory, the “Check Engine” light will blink once every three seconds. If codes are stored, the light will blink a number of times equal to the code number every three seconds. Example: Three blinks = code 3 (T8). If more than one code is stored, the lowest number code is displayed first, followed by a three second pause, then the next highest number code. Codes will continue to cycle (repeat) as long as the ignition is on and the Code Reader is connected.
Pickup	85-86	2.4		
Supra	84-86	2.8		
4 Runner	84-86	2.4		
Van	84-89	2.0, 2.2		

Toyota/Lexus

CODE RETRIEVAL PROCEDURE

Toyota Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
Camry Celica Corolla	85-93 86-95 89-95	2.0, 2.2, 2.5 1.6, 1.8, 2.0, 2.2 1.6, 1.8	Y	Procedure: Locate rectangular diagnostic connector (under hood) (T7). Plug Code Reader into diagnostic connector. Turn ignition on. Observe "Check Engine" light for codes. Codes: Codes are displayed using a series of blinks and pauses. Example: blink-pause-blink, blink, blink = code 13 (T9). If more than one code is stored, the lowest number code is displayed first, followed by a 2.5 second pause, then the next highest number code. When all codes have been displayed, there is a 4.5 second pause, then the codes are repeated. Codes will continue to cycle as long as the ignition is on and the Code Reader is connected.
Cressida Supra	83-89 87-88	All w/ "Super Monitor Display"	N	Procedure: Locate "Super Monitor Display" on dashboard (T5). Push and hold the SELECT and INPUT M keys simultaneously for four seconds. DIAG will appear on the screen. Push and hold SET key for four seconds. View codes on LCD display. Codes: The screen will show OK if no codes are present (T10). If codes are present they will appear on the screen (T10). If more than one code is present, they will be separated by a three second pause.
Cressida Land Cruiser Paseo Pickup Previa Supra T100 Tercel 4Runner	87-92 88-94 92-95 87-95 91-95 87-95 93-94 89-94 87-95	2.8, 3.0 4.0, 4.5 1.5 2.4, 3.0 (FI only) 2.4 (exc. SC) 3.0 3.0 1.5 2.4, 3.0	Y	Procedure: Locate rectangular diagnostic connector (under hood) (T7). Plug Code Reader into diagnostic connector. Turn ignition on. Observe "Check Engine" light for codes. Codes: If there are no codes stored in memory, the "Check Engine" light will blink about two times per second. If codes are stored, codes are displayed using a series of blinks and pauses. Example: blink-pause-blink blink = code 13 (T9). If more than one code is stored, codes are separated by a 2.5 second pause. When all codes have been displayed, there is a 4.5 second pause, then the codes are repeated.

Toyota/Lexus

CODE RETRIEVAL PROCEDURE

Toyota Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
Cressida Land Cruiser Paseo Pickup Previa Supra T100 Tercel 4Runner (cont)	87-92 88-94 92-95 87-95 91-95 87-95 93-94 89-94 87-95	2.8, 3.0 4.0, 4.5 1.5 2.4, 3.0 (F1 only) 2.4 (exc. SC) 3.0 3.0 1.5 2.4, 3.0	Y	Codes will continue to cycle as long as the ignition is on and the Code Reader is connected.
MR2	85-89 91-95	1.6 2.0, 2.2	Y	Procedure: Locate rectangular diagnostic connector (under hood) (T7). Plug Code Reader into diagnostic connector. Turn ignition on. Observe "Check Engine" light for codes. Codes: If there are no codes stored in memory, the "Check Engine" light will blink once every six seconds on 85-88 models, and about two times per second on 89-95 models. If codes are stored, codes are displayed using a series of blinks and pauses. Example: blink-pause-blink blink blink = code 13 (T9). If more than one code is stored, codes are separated by a 2.5 second pause. When all codes have been displayed, there is a 4.5 second pause, then the codes are repeated. Codes will continue to cycle as long as the ignition is on and the Code Reader is connected.

Lexus Code Retrieval Procedures

Model	Years	Eng.	Tool Req?	Perform the following:
ES350 ES300 GS300 LS400 SC300 SC400	90-91 92-93 93-95 90-94 92-95 92-95	2.5 3.0 3.0 4.0 3.0 4.0	Y	Procedure: Locate rectangular diagnostic connector (under hood) (T7). Plug Code Reader into diagnostic connector. Turn ignition on. Observe "Check Engine" light for codes.

Toyota/Lexus

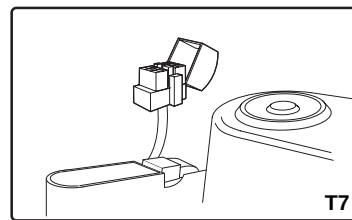
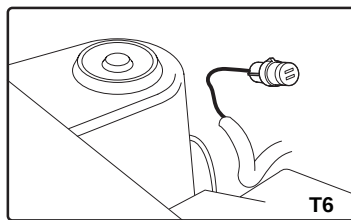
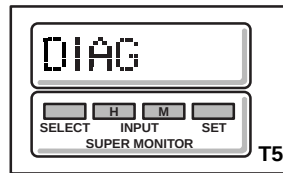
CODE RETRIEVAL PROCEDURE

Lexus Code Retrieval Procedures (Cont)

Model	Years	Eng.	Tool Req?	Perform the following:
ES350	90-91	2.5	Y	Codes: Codes are displayed using a series of blinks and pauses. Example: blink pause blink, blink, blink = code 13 (T9). If more than one code is stored, codes are separated by a 2.5 second pause. When all codes have been displayed, there is a 4.5 second pause, then the codes are repeated. Codes will continue to cycle as long as the ignition is on and the Code Reader is connected.
ES300	92-93	3.0		
GS300	93-95	3.0		
LS400	90-94	4.0		
SC300	92-95	3.0		
SC400 (cont)	92-95	4.0		

Diagnostic Connector Locations

The physical locations of diagnostic connectors for Toyota / Lexus vehicles are shown in Figures T5 through T7. Refer to the code retrieval instructions in Table T1 (Toyota) or Table T2 (Lexus) to determine the correct location for your vehicle.

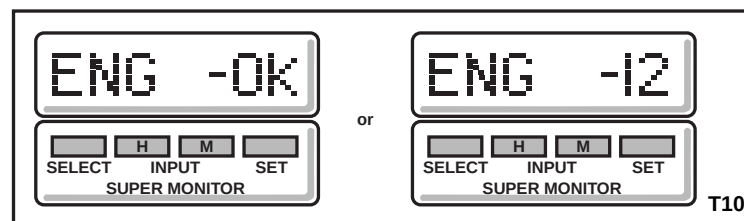
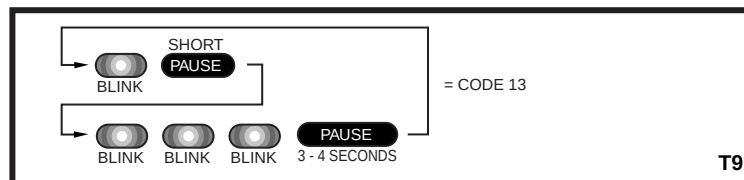
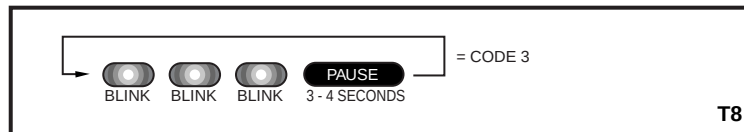


Toyota/Lexus

CODE RETRIEVAL PROCEDURE

Code Examples

Examples of Toyota/Lexus fault codes are shown in Figures T8 through T10. Refer to the code retrieval instructions in Table T1 (Toyota) or Table T2 (Lexus) to determine the code display for your vehicle.



Toyota/Lexus

ERASING CODES

ERASING CODES

- Always observe safety precautions whenever working on a vehicle.
- Remove Code Reader from vehicle's test connector before erasing codes.
- Erase codes only when all repairs have been completed. Refer to "Toyota Erasing Procedures" or "Lexus Erasing Procedures" for specific instructions for your year, make and model.
- After erasing codes, verify that repairs were successfully completed. Start the engine and warm to normal operating temperature. After normal operating temperature is reached, turn off the ignition and repeat the code retrieval procedure for your vehicle. If no codes are retrieved, the repair(s) was successful.

NOTE: Removing fuses or battery cables may clear the memory on the radio, clock, etc., or may enable the "Theftlock" feature on the radio.

Toyota Erasing Procedures

Model	Years	Procedure
4 Runner	85-94	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Camry	85	With ignition off, remove negative battery cable for 30 conds.
	86	With ignition off, remove 15A "ECU-B" fuse for 30 seconds.
	87-93	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Celica	86-95	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Corolla	87-91	With ignition off, remove 15A "Stop" fuse for 30 seconds.
	92-95	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Cressida	83-89	With Super Monitor Display: With ignition off, remove 15A "EFI" fuse for 30 seconds.
	87-88	With ignition off, remove 15A "EFI" fuse for 30 seconds.
	89-92	With ignition off, remove 20A "EFI" fuse for 30 seconds.
MR2	85-87	With ignition off, remove 7.5A "AM2" fuse for 30 seconds.
	88-95	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Land Cruiser	88-94	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Paseo	92-95	With ignition off, remove 15A "EFI" fuse for 30 seconds.

Toyota/Lexus

ERASING CODES

Toyota Erasing Procedures (Cont)

Model	Years	Procedure
Pickup	85-88	With ignition off, remove 15A "EFI" fuse for 30 seconds.
	89	With ignition off, remove 15A "Haz-Horn" fuse for 30 seconds.
	90-94	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Previa	91-95	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Supra	87-88	<i>With Super Monitor Display:</i> With ignition off, remove 15A "EFI" fuse for 30 seconds.
	85-86	With ignition off, remove 15A "Stop" fuse for 30 seconds.
	87-92	With ignition off, remove 15A "EFI" fuse for 30 seconds.
	94-95	With ignition off, remove 30A "EFI" fuse for 30 seconds.
T100	93	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Tercel	89-90	With ignition off, remove 20A "Stop" fuse for 30 seconds.
	91-94	With ignition off, remove 15A "EFI" fuse for 30 seconds.
Van	84-89	With ignition off, remove 15A "EFI" fuse for 30 seconds.

Lexus Erasing Procedures

Model	Years	Procedure
ES250	90-91	With ignition off, remove the 20A "EFI" fuse for 10 seconds.
ES300	92-93	With ignition off, remove the 15A "EFI" fuse for 10 seconds.
GS300	93-95	With ignition off, remove the 20A "EFI" fuse for 10 seconds.
LS400	90-94	With ignition off, remove the 20A "EFI" fuse for 10 seconds.
SC300	92-93	With ignition off, remove the 30A "EFI" fuse for 10 seconds.
	94-95	With ignition off, remove the 20A "EFI" fuse for 10 seconds.
SC400	92-95	With ignition off, remove the 30A "EFI" fuse for 10 seconds.

TOYOTA/LEXUS FAULT CODE DEFINITIONS

IMPORTANT: Retrieving and utilizing Diagnostic Trouble Codes (DTCs) for troubleshooting vehicle operation problems is only one part of an overall diagnostic strategy. Never replace a part based solely on the DTC definition. Always consult the vehicle's service manual for more detailed testing instructions. Each DTC has a set of testing procedures, instructions and flow charts that must be followed to confirm the exact location of the problem. This type of information is found in the vehicle's service manual.

Code	Description	Possible Cause
1	System Normal	
2	VAF sensor circuit	VAF circuit, ECU
3	No ignition signal	Ignition or circuit, coil, ECU
4	ECT sensor circuit	ECT sensor or circuit, ECU
5	O2S circuit	O2S sensor or circuit, ECU
6	Engine Speed (RPM) sensor circuit	Ignitor or circuit, distributor, ECU
7	TPS circuit	TPS or circuit, ECU
8	IAT sensor circuit	IAT sensor or circuit, ECU
9	VSS circuit	VSS sensor or circuit, ECU
10	Starter signal circuit	VSS sensor or circuit, main relay or circuit, ignition circuit, starter circuit, ECU
11	ECU Power Supply	Ignition or circuit, coil, ECU
11	A/C switch ON during code retrieval	A/C switch, ECU
11	Closed throttle position switch OFF during code retrieval	Throttle position switch or circuit, ECU
11	Park / Neutral position switch in D during code retrieval	Park / Neutral switch, start switch, ECU
12	Engine Speed (RPM) sensor circuit	Distributor or circuit, ignitor or circuit, starter or circuit, ECU (non-turbo models); crankshaft or position sensor / circuit, starter or circuit, ECU (turbo models)
13	Engine Speed (RPM) sensor above 1000 RPM	Distributor or circuit, ignitor or circuit, starter or circuit, ECU (non-turbo models); crankshaft or position sensor / circuit, starter or circuit, ECU (turbo models)
14	Ignition reference no signal	Ignition coil, ignitor or circuit, ECU
14	Turbocharger pressure	Turbocharger, airflow meter, ECU
16	Transmission control signal	Transaxle ECU or circuit, ECU

Toyota/Lexus
FAULT CODE DEFINITIONS (21 - 51)

Code	Description	Possible Cause
21	HO2S front circuit	HO2S sensor / heater or circuit, ECU
22	ECT sensor circuit	ECT sensor or circuit, ECU
23	IAT sensor circuit	IAT sensor or circuit, ECU
24	IAT sensor circuit	IAT sensor or circuit, ECU
25	Mixture control continuously lean	Loose ground, injector or circuit, oxygen sensor or circuit, fuel pressure, ignition system coolant temperature sensor, air intake system, airflow meter, air leak, ignition system, electronic air bleed control valve, MAP sensor, vacuum sensor, ECU
26	Mixture control continuously rich	Loose ground, injector or circuit, oxygen sensor or circuit, fuel pressure, ignition system coolant temperature sensor, air intake system, airflow meter, air leak, ignition system, electronic air bleed control valve, MAP sensor, vacuum sensor, ECU
27	HO2S rear circuit	Oxygen sensor or circuit, ECU
28	HO2S right hand front circuit	HO2S sensor / heater or circuit, ECU
31	VOF sensor circuit	VOF circuit, ECU
32	VOF sensor circuit	VOF circuit, ECU
34	Turbocharger wastegate pressure too high	Turbocharger pressure sensor or circuit, turbocharger, MAP sensor, airflow meter, wastegate VSV or circuit, ECU
35	Turbocharger wastegate pressure sensor circuit / BARO	Turbocharger pressure sensor or circuit, MAP sensor or circuit, ECU
41	TPS circuit	TPS sensor or circuit, ECU
42	VSS circuit	VSS sensor or circuit, slipping torque converter, ECU
43	Starter signal circuit	Starter signal circuit, main relay, starter relay, ignition switch or circuit, ECU
47	Sub-Throttle position sensor signal	Sub-TPS sensor or circuit, ECU
51	A/C switch ON during code retrieval	Throttle position switch or circuit, ECU
51	Closed throttle position switch OFF during code retrieval	Throttle position switch or circuit, ECU

Toyota/Lexus

FAULT CODE DEFINITIONS (51 - 85)

Code	Description	Possible Cause
51	Park / Neutral position switch not in P or N during code retrieval	Park / Neutral switch, start switch, ECU
52	Knock Sensor circuit	Knock sensor or circuit, ECU
53	Knock control malfunction	Knock sensor or circuit, ECU
54	Turbocharger intercooler control - coolant too low	Intercooler, coolant level sensor or circuit, intercooler water pump or circuit, intercooler ECU, ECU
54	Turbocharger intercooler control - coolant pump motor	Intercooler, coolant level sensor or circuit, intercooler water pump or circuit, intercooler ECU, ECU
55	Knock sensor right hand circuit	Knock sensor or circuit, ECU
71	EGR system malfunction	EGR system, EGR temperature sensor or circuit, EGR BVSV or VSV or circuit, ECU
72	Fuel cut-off solenoid signal	Fuel cut-off solenoid or circuit, ECU
78	Fuel pump control signal	Fuel pump or circuit, ECU power source or ECU
81	Transmission Control Module Communication	ECT1
83	Transmission Control Module Communication	ESA1
84	Transmission Control Module Communication	ESA2
85	Transmission Control Module Communication	ESA3

Glossary

INTRODUCTION

This Glossary contains definitions for abbreviations and terms you may find in this manual or in your vehicle service manual.

GLOSSARY OF TERMS AND ABBREVIATIONS

A/C – Air Conditioning
A/T – Automatic Transmission
AAC – Auxiliary Air Control
BARO – Barometric Pressure
CKP – Crankshaft Position
CMP – Camshaft Position
CTP – Closed Throttle Position
DOHC – Dual Overhead Cam
ECT – Engine Coolant Temperature
ECM/ECU – Engine Control Module / Unit (vehicle's computer)
EFI – Electronic Fuel Injection
EGR – Exhaust Gas Recirculation
EVAP – Evaporative Emissions Control
F.I. – Fuel Injection
HO2S – Heated Oxygen Sensor
IAT – Intake Air Temperature
L/H – Left Hand
LED – Light Emitting Diode
M/T – Manual Transmission
MAF – Mass Air Flow
MAP – Manifold Absolute Pressure
O2S – Oxygen Sensor
OBD I – On Board Diagnostics First Generation
R/H – Right Hand
SOHC – Single Overhead Cam
TCM – Transmission Control Module
TPS – Throttle Position Sensor
VAF – Vane Air Flow
VSS – Vehicle Speed Sensor

Warranty and Service

LIMITED ONE YEAR WARRANTY

The Manufacturer warrants to the original purchaser that this unit is free of defects in materials and workmanship for a period of one (1) year from the date of original purchase. If the unit fails within the one (1) year period, it will be repaired or replaced, at the Manufacturer's option, at no charge, when returned prepaid to the Technical Service Center with Proof of Purchase. The sales receipt may be used for this purpose. Installation labor is not covered under this warranty.

All replacement parts, whether new or re-manufactured, assume as their warranty period for only the remaining time of this warranty. This warranty does not apply to damage caused by improper use, accident, abuse, or if the product was altered or repaired by anyone other than the Manufacturer's Technical Service Center. Consequential and incidental damages are not recoverable under this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. No portion of this warranty may be copied or duplicated without the expressed written permission from the Manufacturer.

TECHNICAL ASSISTANCE AND WARRANTY SERVICE

Products requiring service should be returned as follows:

1. Call the Technical Service Center to obtain a Return Reference Number:
2. Package the product carefully to prevent shipping damage
3. Include your name, return address, and a day contact phone
4. Enclose a copy of the dated sales receipt
5. Describe the problem
6. Ship prepaid to: Technical Service Center, 17291 Mt. Herrmann Street, Fountain Valley, CA 92708 U.S.A.

For Technical Assistance/Warranty Service, contact us at:

Phone: USA & Canada 1-800-544-4124, Others
714-241-6805; Fax: 714-432-7910; Web: www.iEquus.com;
Email: service@iEquus.com

Warranty and Service

#3173
IMPORT COMPUTER
CODE READER
(BACK COVER)